

be outgrowths from, the middle region of this tube, which is precisely what a gill-slit is in other animals.

A final matter of interest in connection with the tonsils of the Sperm-Whale is the variable occurrence of these organs among the Cetacea. Shulte*, in a foetus of a Rorqual, "found no trace of a tonsil." This is, however, not a question of whalebone-whales differing from the Odontocetes, for Macalister† also "found no trace of a tonsil" in *Globicephalus melas*, while Murie‡, in his elaborate account of the same whale, does not mention that organ.

LXXV.—*On Mammals from the Li-kiang Range, Yunnan, being a further Collection obtained by Mr. George Forrest.*
By OLDFIELD THOMAS.

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THANKS again to the generosity of Col. Stephenson Clarke, C.B., the British Museum has received as a donation a further series of mammals from the highlands of Yunnan, additional to those described by Mr. Hinton and myself in previous numbers of the 'Annals.' The present series, which numbers about 300 specimens, were all obtained in the Li-kiang Range (27° N., 100° 30' E.), and on this account I have repeated here the names of the only species from that range obtained in the first collection but not in the second; so that the present paper forms a complete list of all the mammals as yet known to occur there.

Naturally the great majority of the species now received were included in the first collection, but, none the less, this supplementary collection is a most valuable addition to the Museum, especially as the specimens were for the most part collected at a different time of the year, so that seasonal changes, previously unknown to us, are now generally represented.

Some new forms do occur, however, notably a flying squirrel of the rare genus *Trogopterus*, the new species being

* "Anatomy of a Foetus of *Balenoptera borealis*," Mem. Amer. Mus. Nat. Hist. (n.s.) i. pt. vi. 1916, p. 432.

† "On some Points in the Anatomy of *Globicephalus siveinal* (Gray)," Proc. Zool. Soc. 1867, p. 450.

‡ "Organisation of the Ca'ing Whale, *Globicephalus melas*," Trans. Zool. Soc. vol. viii. 1874, p. 252 *et seq.*

named *T. edithæ*, in honour of Mrs. Stephenson Clarke. And there is a very distinct new species of Pika—*Ochotona forresti*.

1. *Rhinolophus pearsoni*, Horsf.

♀. 2744. Li-kiang Range. 10,000'.

2. *Myotis* sp. (near *M. mystacinus*, Leisl.).

♀. 2713. 10,000'.

3. *Tupaia belangeri chinensis*, And.

♂. 2671, 2766, 2770, 2773, 2784; ♀. 2685, 2771, 2781. 9000–10,000'.

4. *Soriculus sacratu*s, Thos.

2753.

Type-locality. Mt. Omi, Sze-chwan.

5. *Crocidura prædax*, sp. n.

♂. 2627, 2653, 2654, 2666; ♀. 2675, 2690. 9500'.

Most nearly allied to *C. dracula*, Thos., from Southern Yunnan, with which it shares the general proportions and the dull bluey-grey colour. But the size is still larger (*dracula* differing from *attenuata*, M.-Edw., by greater size), and the colour is less suffused and shaded by the blackish ends of the hairs. General colour of upper surface nearest to "deep neutral grey," of lower surface scarcely paler. Hands and feet dull whitish. Tail slender, with but very few bristle-hairs, sometimes white, as it nearly always is in *dracula*.

Skull longer than in *dracula*, and markedly broader across the brain-case. Teeth larger.

Dimensions of the type (measured in flesh):—

Head and body 14 mm.; tail 70; hind foot 17.

Skull: condylo-incisive length 24.1; greatest breadth 11; upper tooth-series 10.8.

Hab. Li-kiang Valley. 9500'.

Type. Adult male. B.M. no. 23. 4. 1. 13. Original number 2653. Collected 21st September, 1922.

"Trapped in wheat-fields."—*G. F.*

No doubt the representative in the Li-kiang Range of the *C. dracula* of S. Yunnan, but distinguished by larger size. The type-skull of *dracula* was accidentally said to be 24 mm. in condylo-incisive length, but is really only 23.3.

6. *Crocidura* sp.

♂. 2574. 11,000'.

A small species of the *russula* group.

7. *Paguma larvata yunalis*, Thos.

♂. 2784. 12,000'.

8. *Nyctereutes procyonoides orestes*, subsp. n

♀. 2796. N.W. Flank. 10,000–12,000'.

“Shot in forest.”

A highland race of *procyonoides*.

General colour as in Central China specimens of *procyonoides*, a specimen from S.E. Sze-chwan, probably representing “*stegmani*,” quite similar in colour and character of fur. Tail, however, whiter than in that animal, its wool-hairs only tinged with grey at their extreme bases, the longer hairs white for about 45 mm., black for their terminal 30 mm. Throat, forearms, and feet black, not merely brown.

Skull small, short and dumpy, its surface roughened. A well-marked sagittal crest commencing to form, though the specimen is not old. Zygomatic arches quite unusual in being comparatively parallel, scarcely expanded posteriorly, the greatest zygomatic breadth (56.5 mm.), opposite the front edge of the glenoid fossa, very little more than it is opposite the inferior postorbital processes (53 mm.), while in the ordinary *Nyctereutes* the zygomata are widely expanded behind, an average female specimen having these two numbers 63.5 and 53 mm. This latter proportion is invariable throughout all the other available *Nyctereutes* skulls, and equally corresponds with the Berlin series measured by Dr. Matschie.

Teeth as usual, though the type has the abnormality of an additional molar (m^3) on the right side above.

Dimensions of the type :—

Head and body 550 mm.; tail 170; hind foot 95; ear 47.

Skull: greatest length to lateral occipital protuberance 105; zygomatic breadth 56.5; nasals, length 37, median breadth 7; interorbital breadth 19; breadth of brain-case 40; mastoid breadth 39; palate length 54. Cheek-tooth series 37; length of p^4 on outer edge 9.

Type. Adult female. B.M. no. 23. 4. 1. 20. Original number 2796. Collected 10th November, 1922.

This is the first specimen received by the Museum from the highlands of Western China, nor are any recorded from

there by Prof. Matschie, whose nearest locality is Chungking, on the middle Yang-tse, whence he has described *N. stegmani*.

This animal appears to be distinguishable from the other members of the genus by its parallel instead of widely expanded zygomata.

9. *Ailurus styani*, Thos.

♂. 2786 ; ♀. 2787, 2788 (yg.). 11,000'.

10. *Charronia flavigula*, Bodd.

Not represented in the second collection.

11. *Lutreola sibirica moupinensis*, M.-Edw.

♂. 2683 ; ♀. 2682. N.W. Flank. 11,000–14,000'.

12. *Arctonyx obscurus*, M.-Edw.

♂. 2785. N.W. Flank. 9000–10,000'.

13. *Petaurista xanthotis*, M.-Edw.

♂. 2794, 2795 ; ♀. 2793. 10,000–11,000'.

This fine animal, which is distinguishable from Mr. Forrest's previous discovery, *P. clarkei*, by its larger size and blackish feet, was supposed by Milne-Edwards to be "only a variety" of his *P. melanopterus*, and he did not apparently realize that in stating that the animal "had been placed in the public gallery under the name of *P. xanthotis*" he was founding a new name for it. The name, however, clearly stands, and would certainly seem to be referable to the present species, which forms a new and striking addition to our collections. The original locality of *xanthotis* was only recorded as "Tibet," but was in all probability Mu-pin, Sze-chwan, as with other mammals obtained by Père David.

14. *Hylopetes alboniger*, Hodgs.

♂. 2790 ; ♀. 2791. N.W. Flank. 11,000'.

15. *Trogopterus edithæ*, sp. n.

♂. 2792. N.W. Flank. 11,000'.

A grey species, less yellow than in the other forms, with comparatively dark-coloured hands and feet.

Size rather less than in *T. mordax*. Fur about as in *T. mordax*, not so long as in *himalaicus*, the hairs of the back (February) about 24 mm. in length. General colour above greyish brown, the fine tickings on the hairs buffy drab, not ochraceous. Under surface dull whitish, with no buffy wash on the belly, and scarcely any trace of it on the undersides of the parachute; bases of the hairs deep slaty grey. Ears with less of the usual tufts of elongated hairs round and on them; one small tuft at the base of their outer margin; the ears themselves only with very fine black hairs. Arms becoming more buffy, even slightly ochraceous, on the wrists, but far less than in *mordax* and *xanthipes*. Anterior edge of parachute dark ochraceous. Hands grizzled buffy brown on the metacarpals, becoming black on the digits. Sides of parachute blackish above. Front of legs washed with buffy. Feet blackish ticked with tawny, the digits deeper tawny. Tail dark greyish, with many of the longer hairs tipped with buffy; dull greyish below.

Skull of about the size of that of *xanthipes*, smaller than in *mordax*. Bullæ comparatively small, much less inflated than in *mordax*, lower even than in *xanthipes* and *himalaicus*.

*P*⁴ not so excessively hypertrophied as in *mordax*, slightly narrower even than in *xanthipes* and *himalaicus*; its length in the type 5.0 mm., its breadth 4.2, the corresponding measures in *mordax* being 6.2 and 5.0 mm.

Dimensions of the type:—

Head and body 268 mm.; tail 260; hind foot 56; ear 30.

Skull: greatest length 55.5; condylo-incisive length 51.5; zygomatic breadth 35; nasals 18 × 10; palatine foramina 5.4; length of bulla 11.2. Upper cheek-teeth 14.8, molars only 9.7.

Type. Young adult male (the basilar suture perceptible, but not definitely open). B.M. no. 23. 4. 1. 32. Original number 2792. Collected February 1922.

This pretty flying-squirrel I have named in honour of Mrs. Stephenson Clarke. It is distinguished from the *Trogopterus* of Central China, *T. mordax*, by its less buffy colour and its smaller *p*⁴. In the absence of the buffy colour below, especially on the parachute, it is distinguishable from all the members of the genus.

In working out Mr. Forrest's Li-kiang *Trogopterus*, I have re-examined the two specimens from the Upper Min River referred to *T. mordax* in the original description of the latter, and now think that they are referable to yet another highland species, which may be termed

Trogopterus minax, sp. n.

P^4 hypertrophied, as in *T. mordax*, but the bullæ comparatively small.

Size about as in *T. mordax*. Fur long and soft, hairs of back about 32 mm. in length. General colour above about as in *edithæ*, not of the warmer and more buffy tone of *mordax*. Under surface, on the other hand, broadly washed with bright buffy, which extends on to the underside of the parachute, not, however, so vividly as in *mordax*. Ears black, without any suffusion of buffy, their tufts less than in *mordax*, about as in *edithæ*. Forearms and legs washed with buffy, hands and feet rich ochraceous buffy, as in *T. mordax*. Tail greyish, with drabby ends to the hairs.

Skull, as judged by that of the immature paratype, with far smaller bullæ than in *mordax*, more inflated than in *edithæ*.

P^4 hypertrophied, as in *mordax*, enormously large and broad, that of the type 6.4×5.3 mm.; milk p^4 4.7×4.2 .

Dimensions of the type:—

Hind foot 54 mm.; ear (wetted) 32.

Skull of type: tip of nasals to back of postorbital process 33.3; nasals 20.4×10 ; palatilar length 31; upper cheek-teeth 17.2; molars only 11.1. Length of bullæ in the young paratype 11.4.

Hab. Upper Min River, Sze-chwan. Type from Wonn Chuen.

Type. Old male. B.M. no. 9. 7. 21. 4. Collected and presented by the late Mr. J. W. Brooke.

That this is not *edithæ* is shown by its hypertrophied p^4 , while from *mordax* it is distinguishable by its smaller bullæ and less buffy colour.

16. *Callosciurus erythræus michianus*, Rob. & Wr.

♂. 2700, 2763, 2774, 2778, 2778*. 10,000'.

17. *Rupestes forresti*, Thos.

♂. 2783. 11,000'.

♀. 2767. N.W. Flank of range. 9000–10,000',

This—the special zoological prize of the first collection—now turns up in the Li-kiang Range. The previous specimens were from the Mekong–Yangtze divide, some 60 miles distant.

18. *Tamiodon clarki*, Thos.

♂. 2761, 2781; ♀. 2702, 2776. 10,000–11,000'.

19. *Tamiodon maritimus forresti*, Thos.

♀. 2703, 2705. 10,000'.

20. *Dremomys pernyi lichienensis*, Thos.

Twenty-five specimens.

Uniformly similar to the typical series.

21. *Rattus* sp. (cf. *nitidus*, Hodgs.).

♂. 2667, 2707; ♀. 2659. 13,000–14,000'.

22. *Rattus confucianus*, M.-Edw.

♂. 2660, 2664; ♀. 2647, 2684. N.W. Flank. 13,000–14,000'.

23. *Apodemus ilex*, Thos.

Six specimens. 10,000–12,000'.

24. *Apodemus speciosus latronum*, Thos.

Six specimens. 10,000–12,000'.

25. *Apodemus chevrieri*, M.-Edw.

Sixteen specimens.

26. *Eothenomys fidelis*, Hint.

Sixteen specimens. 11,000–14,000'.

27. *Eothenomys proditor*, Hint.

Sixty-nine specimens. 12,000–15,000'.

So far as we know at present, these two species of *Eothenomys* are peculiar to the Li-kiang Range, while, on the other hand, there is no *Neodon* there, its place being, perhaps, taken by one or other of them.

28. *Microtus clarkei*, Hint.

♂. 2603. 13,000'.

This specimen is indistinguishable from the typical series described from the Kiu-kiang-Salween divide.

29. *Rhizomys wardi*, Thos.

♀. 2789. N.W. Flank. 12,000–13,000'.

Evidently widely distributed through the Yunnan highlands. Mr. C. J. Gregory recently obtained a specimen at Lanpinghsien, 26° 27' N., 99° 28' E.

30. *Ochotona forresti*, sp. n.

♂. 2597, 2598. N.W. Flank. 13,000'.

A large species allied to *thibetana*.

Size considerably larger than in any described species of the *thibetana* group. Fur medium, hairs of back about 15 mm. in length. General colour above of the same heavily lined brown as in *thibetana* and *sikimaria*. Under surface dark soiled greyish, the hairs slaty at base, whitish or buffy at tip. Nape dark hoary greyish, this colour extending more or less on to the face, but the forehead is brown. Ears like those of *thibetana*, of similar length, with the same black or blackish proectote, dark grey-brown metentote, and well-defined white edge. Arms buffy or tawny brown, the shoulders and sides of neck also more or less washed with tawny. Hands buffy whitish; fore-claws very long, much longer than those of any of the species of the *thibetana* group, and equalling those of the large *O. roylei*. Feet dull whitish, the metatarsals buffy; brushes of soles blackish.

Skull of the general shape of that of *thibetana*, but larger, and not so flattened. Nasals proportionally narrower. Palatine foramina only slightly and evenly expanded behind, quite without the conspicuous posterior broadening found in *thibetana*. Bullæ about as in that species.

Dimensions of the type:—

Head and body 185 mm.; hind foot 27; ear 19.

Skull: greatest length 39; condylo-incisive length 37; zygomatic breadth 19.4; nasals 12.6 × 6; interorbital breadth 5; breadth of brain-case 15.8; palatal foramina 9.6 × 3.3; length of bulla 9; upper tooth-series (alveoli) 7.3.

Type. Adult male. B.M. no. 23. 4. 1. 91. Original number 2597. Collected in August 1922.

Among the several closely allied species of the *thibetana* group this Pika stands out by its comparatively large size, its grey nape, convex skull, and the absence of the posterior broadening of the palatal foramina so marked in the other forms. In all probability it does not occur exactly on the same ground as *O. thibetana*, although living at about the same altitude on the same range.

Named in honour of Mr. George Forrest, to whose abilities the two valuable Yunnan collections are due, and who has taken great interest in his mammal work.

While naming this Pika, I have again examined the Omi-san specimen obtained by Mr. Malcolm Anderson in 1910, and then referred to *O. thibetana*. It is, however, so different in colour to the ordinary *thibetana* that, now we have seen a much larger number of specimens of the latter, I may venture to give it a special subspecific name :—

Ochotona thibetana sacraria, subsp. n.

General characters of *thibetana*, but the back of a reddish-brown colour, between cinnamon and cinnamon-brown, this colour being apparently due to the light rings on the hairs being dark ochraceous instead of drabby. On the sides the tone is more uniform and more cinnamon. Nape with no evident nuchal mantle or patch.

Skull as in *thibetana*, but rather flatter, and there is no trace of the minute postorbital projections usually present in that animal.

Dimensions of the type (measured in flesh) :—

Head and body 149 mm. ; hind foot 28 ; ear 18.5.

Skull : greatest length 36.7 ; condylo-incisive length 34 ; nasals 11.6 ; palatal foramina 9.8×4.8 ; length of bulla 8 ; upper tooth-series 7.2.

Hab. Mt. Omi-san, Omi-hsien, S. Sze-chwan. Alt. 9500'.

Type. Adult male. B.M. no. 11. 2. 1. 258. Original number 2525. Collected 17th August, 1910, by M. P. Anderson. Presented by the Duke of Bedford, K.G.

31. *Ochotona thibetana*, M.-Edw.

♂. 2644, 2709 ; ♀. 2592, 2599, 2640. 13,000–16,000'.